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Notice of a New Species of *HEMILEPIDOTUS*, and Remarks on the Group (*TEMNISTIAE*) of which it is a member.

BY THEODORE GILL.

In the family of Cottoids there exist three genera which quite closely resemble each and have a rather peculiar physiognomy, but at the same time differ so decidedly from each other, and are distinguished by characters of such previously acknowledged importance, that their close mutual affinity has been overlooked; and the respective genera have been referred to the neighborhood of quite dissimilar groups.* The best and largest known of these genera is *Hemilepidotus* of Cuvier; the other two are *Temnistia* of Richardson and *Scorpenichthys* of Girard. For the group thus composed, the name of *Temnistia* is preferable, as it describes the most peculiar character of the group. Although *Hemilepidotus* is the chief genus, its name is too restrictive to be modified for the appellation of the group.

The *Temnistia* are distinguished by the development of the first dorsal fin, which is more than half as long as the second, composed of about eleven spines, and with the anterior spines rather shorter and more or less separated by a notch or incision from the following. The supramaxillary bones, snout, supra-orbital region and the forehead and preorbital bones are furnished with cutaneous tags or barbels.

The three genera are chiefly distinguished by the following differential characters.

TEMNISTIA Richardson.

Abdomen nearly hemispherical and naked. Pectinated scales cover the rest of the trunk. Second dorsal and anal fins with undivided rays.

HEMILEPIDOTUS Cuvier.

Scales in two longitudinal bands on each side, one dorsal and one lateral.

SCORPENICHTHYS Girard.

Body naked and smooth. V. I. 5.

Five species, inclusive of that here described, are now known to belong to the group. All of them are peculiar to the western coast of North America or the Arctic Seas; the typical species of *Hemilepidotus*, as well as the single known *Temnistia*, are both found in the Northern waters. The existence of *Temnistia* has been quite forgotten by the recent systematic writers, although its rank as a valid genus cannot be challenged.

HEMILEPIDOTUS GIBBSII Gill.

The form and proportions are nearly identical with those of *H. spinosus* (Girard.) The crown, of the region above the preoperculum and operculum, and the interocular space, are granulated, but *without spines*. There are *four* equidistant short flaps in a transverse row behind the interorbital area, four papillose barbels on the margin of each preorbital bone, and another on the suborbital above the end of the supramaxillary; from the centre of the latter a larger compressed flap springs. On the chin are *four* small flaps. A flap also exists near the anterior angle of the upper cleft of the branchial aperture.

* I embrace this opportunity to state that the genus *Triglopsis* of Girard is most closely allied to my *Oncocottus*, of which the *Cottus quadricornis* of Europe is the type, and differs chiefly in the absence of the "horns" or claviform tubercles and in its fresh water habitat, &c. The entire family of Cottoids indeed requires a careful revision. Dr. Günther has been quite unsuccessful in his distribution of the species, and has regarded as doubtful species which belong to peculiar genera that have been clearly and distinctly characterized, while genera and species whose claims to that rank are much more questionable have been admitted.

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The *abdomen* is spotted. The preopercular, interopercular and suborbital regions, the membrane connecting the maxillary bones and the lower surface of the head, are covered with large dark brown dots. The fins are more or less distinctly banded or spotted; the ventrals whitish.

Specimens of this species were obtained by Dr. Kennerly, the naturalist of the North-Western Boundary Survey, and are also found at San Francisco, a large specimen being in the same lot containing the true *Hemilepidotus spinosus*, and confounded with it by Dr. Girard. From that species it differs in the number and arrangement of the cutaneous tags as well as by color.

I have dedicated the species to my friend, Mr. George Gibbs, who rendered much valuable assistance to the naturalist of the Survey. A detailed description will be given in the Report on the Ichthyology of the Western Coast.

On the Subfamily of ARGENTININÆ.

BY THEODORE GILL.

In the "Catalogue of the Fishes of the Eastern Coast of North America," the family of Salmonoids is divided, with Prince Bonaparte, into two subfamilies,—the Salmoninæ and Argentininæ,—but with the very important modification of the exclusion from the latter, as well as from the family itself, of the genus *Microstoma*. With Bonaparte also *Osmerus* is retained among the Salmoninæ, while *Mallotus* is placed in the subfamily of Argentininæ. The great error involved in this arrangement was subsequently discovered, but I unfortunately forgot to correct it in the Catalogue. The only character which thus separates the two subfamilies is the development of the teeth,—a character of secondary value. The two subfamilies are very distinct from each other, but distinguished chiefly by the modifications of the intestinal canal.

The Salmoninæ have the stomach nearly or quite siphonal, and the pyloric cæca are numerous.

The Argentininæ have the stomach decidedly cæcal, and the cæca are generally five in number, and surround the pyloric extremity of the stomach.

Dr. Kner, in his excellent contribution on the form of the stomach and the development of the pyloric cæca, has even suggested that *Osmerus* and its allies may belong to a different family; and it certainly appears quite probable that such is the case. The position of the Argentininæ, as a subfamily of the Salmonoids, is therefore provisional.

The Argentininæ, as now characterized, are divisible among two distinct groups; one has the normal salmonoid position of the dorsal fin, or, in other words, it is subcentral, and above or nearly above the ventrals. This group embraces all the common northern or European and American species.

Another group, represented by a single species, is distinguished by the posterior insertion of the dorsal and its position above the anus; the species is an inhabitant of Australasian seas, and has been described under the name of *Argentina retropinna*, by Sir John Richardson. The specific name may be accepted as a generic appellation, while the species can be called in honor of its learned describer, *Retropinna richardsonii*.

A species of the true Argentine group also is the type of a distinct genus nearly allied to Argentinæ, with which it agrees in the number of branchiostegal rays, but the mouth is larger, the dentition different and the ventral fins more advanced. Its type is the *Argentina pretiosa* of Girard, or *Osmerus elongatus* of Ayres. It may be named *Mesopus*, in allusion to the position of the ventral fins.

The following synopsis exhibits the relations and differential characters of the several genera :—

[Jan.